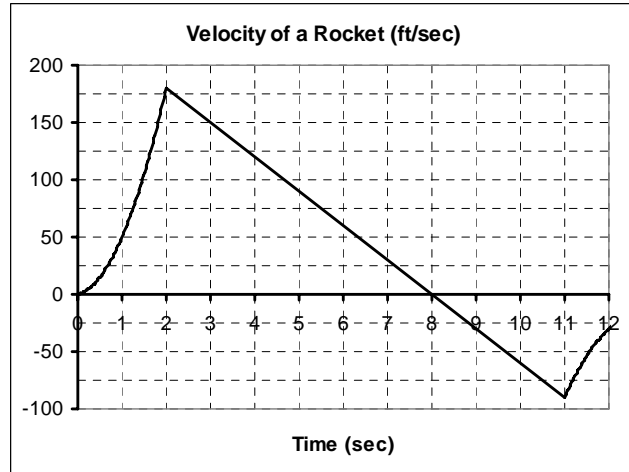


ROCKET

NAME _____

When a model rocket is launched, the fuel burns for a few seconds, accelerating the rocket upward. After burnout, the rocket coasts upward for awhile and then begins to fall. A parachute pops out shortly after the rocket starts down in order to slow the rocket. Use the graph at the right to answer the questions below.



- A. How fast was the rocket traveling 4 seconds after it was launched?
- B. Was the rocket going up or down 6 seconds after it was launched? How do you know?
- C. When did the rocket reach its highest point? How high did it go?
- D. When did the parachute pop out? How do you know?
- E. Estimate $\int_6^{10} v(t) dt$ and give a practical interpretation.
- F. Estimate $\int_6^{10} |v(t)| dt$ and give a practical interpretation.
- G. Find the average velocity over the first 8 seconds.
- H. Find $v'(6)$ and give a practical interpretation.
- I. Find the average acceleration over the first 8 seconds.
- J. If $s(t)$ represents the position of the rocket at time t , find $s(6) - s(4)$.
- K. Express your answer in part J. as a definite integral in terms of $v(t)$.